

# MINERAL INDUSTRY SURVEYS

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## LEAD IN DECEMBER 1996

Mine production, based upon the net quantity recovered in the smelting of concentrate, increased by 6% in December. Total mine production in 1996 increased by 8% compared with production in 1995. Primary refinery production and secondary refinery production decreased by about 3% and 4%, respectively, in December. Total production of refined lead, primary plus secondary, was about 1% more in 1996 than in 1995. Reported consumption in December decreased by about 13% compared with consumption in November.

According to Platt's Metals Week published quotations, the average North American producer price and the average London Metal Exchange (LME) cash price declined for the fourth consecutive month, decreasing by 0.4% and 3.9%, respectively, in December.

National Defense Stockpile cash disposal (sale) of lead in December 1996 was 1,107 metric tons (1,220 short tons). Sale of lead to date in fiscal year 1997 (October through December 1996) was 4,231 metric tons (4,664 short tons).

The Doe Run Company, St. Louis, MO, temporarily shut down its Buick secondary lead smelter in Boss, MO, in early December after encountering difficulties with its reverberatory furnace. The smelter was expected to be out of operation for approximately 6 weeks while the company relined the furnace. According to a Doe Run official, about 5,400 metric tons of lead production could be lost during the shutdown period. Total production of lead at the Buick facility for the fiscal year ended October 31, 1996 was 81,600 metric tons.<sup>1</sup>

ASARCO Incorporated, New York, NY, announced that it had reversed an earlier decision to close indefinitely its Leadville, CO, zinc-lead-silver mine at the end of 1996, and expected to resume full production at the mine by mid-March 1997. According to a company spokesperson, a key factor in the decision to reopen the mine was the likely impact of the shutdown on the local community. The Leadville operation, a

principal industry in the community, employs about 130 people. Production at Leadville in 1995 was 14,000 metric tons of zinc and 4,500 metric tons of lead in concentrate.<sup>2</sup>

Western Metals, Western Australia, expects to complete final feasibility studies by early 1997 on its Blendevale zinc-lead mining project in the Kimberley region of Western Australia. Western, which holds a 60% interest in the project, a joint venture with Acacia Resources (40%), estimates that the mine will have a 10-year life, producing 182,000 and 42,000 tons per year of zinc and lead concentrates, respectively. Plant construction is scheduled to begin in mid-1997 with production of concentrates expected to begin in mid-1998.<sup>3</sup> In other mining activities, Western Metals and Iscor, a South African steel and mining group, have failed to reach a final agreement on Western's purchase of the Rosh Pinah zinc-lead mine in southwestern Namibia. A memorandum of understanding on the purchase of the mine had been signed in early July 1996. Although negotiations continued throughout the remainder of the year, a Western official was quoted as saying that "the circumstances of the parties have changed from those originally envisioned in the memorandum of understanding." Western reportedly has not ruled out further discussion but said that "any further discussions must take into account these changed circumstances."<sup>4</sup> The current status of the sale of Rosh Pinah will likely affect the planned reopening of Gold Fields Namibia Ltd.'s primary lead smelter at Tsumeb, Namibia, in late February 1997. The Rosh Pinah Mine supplies the Tsumeb smelter with 60% to 70% of its custom feed.<sup>5</sup> The smelter had been closed for upgrading in August 1996, but damages subsequently incurred as a result of a month-long conflict between miners and management at the property prevented it from being restarted as originally planned.<sup>6</sup>

Farallon Resources Ltd., Vancouver, BC, Canada recently reported the discovery of an appreciable new sulfide deposit at

its Campo Morado project in Mexico's Guerrero State. The new deposit, called South Naranjo, is just south of Farallon's Reforma sulfide deposit. Assay results from the company's drill-delineation program showed ore contents of up to 7.6% zinc, 3.3% lead, and significant quantities of gold, silver, and copper.<sup>7</sup>

Centromin, Peru's state mining and smelting company, again canceled plans to sell its Yauricocha polymetallic mine in Yauyos, Lima Department, citing a lack of investor interest. An earlier attempt in September 1996 to sell the mine had also failed to attract bids. According to a Centromin spokesperson, the company has decided to restructure the sale to include an option for exploration in new deposits that have been discovered near the existing mine. Approximately 350,000 tons of ore are processed annually at Yauricocha. Reserves at the mine were said to total 2.8 million tons, grading 5.3% zinc, 2.8% lead, and significant quantities of copper, silver, and gold.<sup>8</sup>

Sweden's Boliden Mineral AB recently began mining operations at its Los Frailes zinc-lead-copper mine in Sevilla, Spain, replacing the nearby Aznalcollar Mine, which had been

depleted of reserves. Los Frailes is expected to be at full production capacity of 110,000, 45,000, and 6,000 tons per year of zinc, lead, and copper, respectively, by mid-1997.<sup>9</sup>

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<sup>1</sup>Metal Bulletin. Doe Run Shuts Plant To Reline Furnace. No. 8135, Dec. 5, 1996, p. 16.

<sup>2</sup>Platt's Metals Week. Asarco Reverses Leadville Mine Shutdown Decision. V. 67, No. 50, Dec. 16, 1996, p. 1.

<sup>3</sup>Metal Bulletin. Western Expected To Complete Feasibility At Blendevale. No. 8134, Dec. 2, 1996, p. 7.

<sup>4</sup>\_\_\_\_\_. Rosh Pinah Talks Go Slow. No. 8137, Dec. 12, 1996, p. 14.

<sup>5</sup>\_\_\_\_\_. Tsumeb Copper Smelter To Start Soon. No. 8138, Dec. 16, 1996, p. 7.

<sup>6</sup>Platt's Metal's Week. No Restart Date For Tsumeb Pb Smelter. V. 67, No. 38, Sept. 23, 1996, p. 9.

<sup>7</sup>Mining Journal, London. Industry In Action; Exploration--Mexican Massive Sulphides. No. 8409, Dec. 20/27, 1996, p. 496.

<sup>8</sup>Metal Bulletin. Centromin Postpones Yauricocha Auction. No. 8134, Dec. 2, 1996, p. 1.

<sup>9</sup>\_\_\_\_\_. Hotline—Los Frailes Takes Over. No. 8140, Dec. 23, 1996, p. 11.

TABLE 1  
SALIENT LEAD STATISTICS IN THE UNITED STATES 1/

(Metric tons)

	1995		1996		
	Year total	Jan. - Dec.	Nov.	Dec.	Jan. - Dec.
Production:					
Mine (recoverable)	386,000 r/	386,000 r/	33,600 r/	35,700	418,000
Primary refinery 2/	374,000	374,000	26,100	25,500	326,000
Secondary refinery:					
Reported by smelters/refineries	955,000 r/	737,000 3/	94,400	90,400	1,010,000
Estimated	(4/)	193,000 3/	1,670	1,550	16,100
Recovered from copper-base scrap e/	17,100 r/	15,000 3/	1,250	1,250	15,000
Total secondary	972,000 r/	945,000 3/	97,300	93,200	1,040,000
Stocks, end of period:					
Primary refineries 2/	XX	XX	7,830	8,160	XX
Secondary smelters and consumers	XX	XX	57,300 r/	55,300	XX
Imports for consumption:					
Ore and concentrates (lead content)	2,590	2,590	1	NA	5,860 5/
Refined metal	264,000	264,000	25,000	NA	245,000 5/
Consumption:					
Reported	1,600,000	851,000 3/	119,000	104,000	1,230,000
Undistributed e/	--	521,000 3/	44,000	38,400	454,000
Total	1,600,000	1,370,000 3/	163,000	142,000	1,680,000
Exports (lead content):					
Ore and concentrates	65,500	65,500	383	NA	44,400 5/
Materials excluding scrap	57,200	57,200	6,760	NA	95,800 5/
Ash and residues	8,040	8,040	3,130	NA	18,800 5/
TEL/TML preparations, based on lead compounds	3,210	3,210	106	NA	2,950 5/
Exports (gross weight): Scrap	105,000	105,000	6,110 6/	NA	77,300 5/ 6/
Platt's Metals Week North American producer price (cents per pound)	42.28	42.28	48.72	48.52	48.83

e/ Estimated. r/ Revised. NA Not available. XX Not applicable.

1/ Data are rounded to three significant digits, except prices; may not add to totals shown.

2/ Data from American Bureau of Metal Statistics, Inc. (ABMS).

3/ Data does not include 1995 annual respondents.

4/ Revised to zero.

5/ Includes data for January-November only; December data not available at time of publication.

6/ Includes only non-battery scrap data.

TABLE 2  
MONTHLY AVERAGE LEAD PRICES

	North American producer price cents/lb	LME		Sterling exchange rate dollars/£
		\$/metric ton	£/metric ton	
1995:				
December	43.95	713.14	456.41	1.562476
Year average	42.28	630.53	399.53	1.578176
1996:				
September	49.57	795.96	510.47	1.559290
October	49.04	741.48	467.42	1.586314
November	48.72	716.18	430.83	1.662311
December	48.52	688.38	413.70	1.663933
Average Jan. - Dec.	48.83	773.87	496.71	1.561616

Source: Platt's Metals Week.

TABLE 3  
MINE PRODUCTION OF RECOVERABLE LEAD IN THE UNITED STATES 1/

(Metric tons)

	1995		1996		
	Year total	r/ Jan. - Dec.	Nov.	r/ Dec.	Jan. - Dec.
Missouri 2/	359,000	359,000	31,900	33,000	387,000
Other States	26,600 3/	26,600 3/	1,720 4/	2,710 4/	30,900 4/
Total	386,000	386,000	33,600	35,700	418,000
Daily average 5/	1,060	1,060	1,120	1,150	1,140

r/ Revised.

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Alaska and Missouri combined to avoid disclosing company proprietary data.

3/ Includes Colorado, Idaho, Illinois, Montana, New York, and Tennessee.

4/ Includes Colorado, Idaho, Montana, and New York.

5/ Based on number of days in period without adjustment for Sundays or holidays.

TABLE 4  
CONSUMPTION OF PURCHASED LEAD-BASE SCRAP IN DECEMBER 1996 1/

(Metric tons, gross weight)

Item	Stocks	Net	Consumption	Stocks
	Nov. 30,			receipts
	1996			1996
Battery-lead	39,200	103,000	103,000	39,300
Soft lead	W	W	W	W
Drosses and residues	1,350	3,630	3,920	1,070
Other 2/	850	2,530	2,260	1,120
Total	41,400	109,000	109,000	41,500
Percent change from preceding month	--	-3.6	-4.3	+0.0

W Withheld to avoid disclosing company proprietary data; included with "Other."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes solder, common babbitt, antimonial lead, cable covering, type metals, and other lead-base scrap not elsewhere classified.

TABLE 5  
LEAD, TIN, AND ANTIMONY RECOVERED FROM LEAD-BASE  
SCRAP IN DECEMBER 1996 1/

(Metric tons)

Product recovered	Secondary metal content		
	Lead	Tin	Antimony
Soft and calcium lead	48,300	--	--
Remelt lead	W	W	W
Antimonial lead	37,400	11	W
Other 2/	W	W	--
Total lead-base	90,400	31	533

W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to three significant digits.

2/ Includes cable lead, lead-base babbitt, solder, type metals, and other products.

TABLE 6  
CONSUMPTION OF LEAD IN THE UNITED STATES 1/

(Metric tons, lead content)

Uses	1995		1996		
	Year total	Jan. - Dec. 2/	Nov.	Dec.	Jan. - Dec.
<b>Metal products:</b>					
Ammunition-shot and bullets	70,900	52,000	1,200	2,420	37,300
Brass and bronze-billet and ingots	8,860	6,120	511	447	6,060
Cable covering-power and communication and calking lead-building construction	6,580	5,510	676	593	6,720
Casting metals	18,100	W	118	43	1,400
Pipes, traps, and other extruded products	2,210	915	(3/)	(3/)	(3/)
Sheet lead	27,900	11,000	762	5,160	13,900
Solder	16,200	5,960	402	282	5,480
Storage batteries, including oxides	1,360,000	710,000	114,000	94,000	1,140,000
Terne metal, type metal, and other metal products 4/	11,700	6,140	187	134	3,830
<b>Total metal products</b>	<b>1,520,000</b>	<b>798,000</b>	<b>118,000</b>	<b>103,000</b>	<b>1,210,000</b>
Other oxides	61,700	44,700	(5/)	(5/)	(5/)
<b>Miscellaneous uses including gasoline additives</b>					
Miscellaneous uses including gasoline additives	21,900	7,870	833	827	13,600
<b>Total reported</b>	<b>1,600,000</b>	<b>851,000</b>	<b>119,000</b>	<b>104,000</b>	<b>1,230,000</b>
Undistributed consumption e/	--	521,000	44,000	38,400	454,000
<b>Grand total</b>	<b>1,600,000</b>	<b>1,370,000</b>	<b>163,000</b>	<b>142,000</b>	<b>1,680,000</b>

e/ Estimated. W Withheld to avoid disclosing company proprietary data; included with "Terne metal, type metal, and other metal products."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Data does not include 1995 annual respondents.

3/ Withheld to avoid disclosing company proprietary data; included with "Sheet lead."

4/ Includes lead consumed in foil, collapsible tubes, annealing, plating, galvanizing, and fishing weights.

5/ Withheld to avoid disclosing company proprietary data; included with "Miscellaneous uses including gasoline additives."

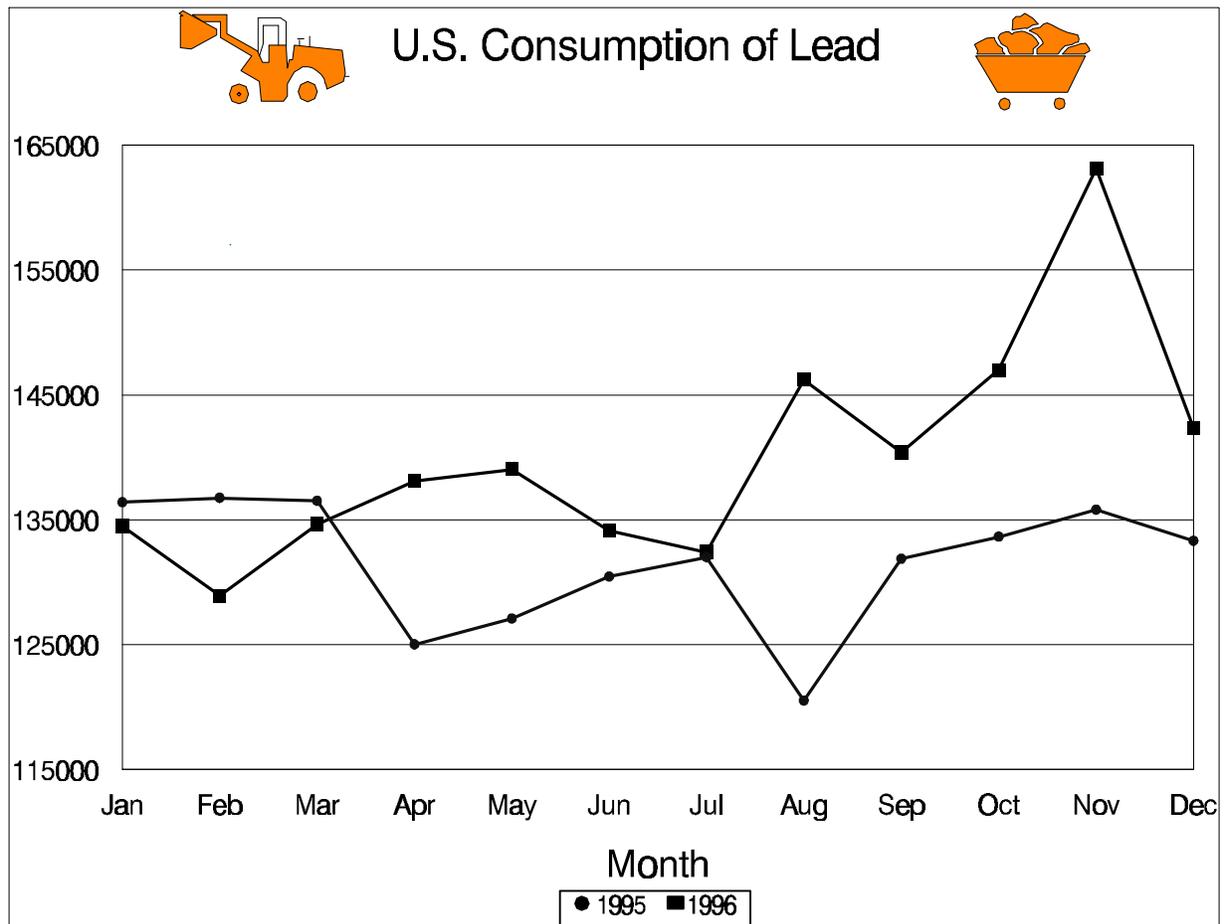


TABLE 7  
CONSUMER AND SECONDARY SMELTER STOCKS, RECEIPTS, AND  
CONSUMPTION OF LEAD IN DECEMBER 1996 1/

(Metric tons, lead content)

Type of material	Stocks		Consumption	Stocks Dec. 31, 1996
	Nov. 30, 1996	Net receipts		
Soft lead	19,100 r/	59,300	58,500	19,800
Antimonial lead	34,100 r/	24,300	26,900	31,500
Lead alloys	W	18,000	18,100	W
Copper-base scrap	W	395	395	W
Total	57,300 r/	102,000	104,000	55,300

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Data are rounded to three significant digits; may not add to totals shown.

TABLE 8  
CONSUMPTION OF LEAD BY CLASS OF PRODUCT AND  
TYPE OF MATERIAL IN DECEMBER 1996 1/

(Metric tons, lead content)

Class of product	Soft lead	Antimonial lead	Lead alloys	Copper-base scrap	Total
Metal products	58,500	26,900	18,100	395	104,000
Other oxides 2/	W	--	--	--	W
Miscellaneous uses	W	W	W	--	W
Total	58,500	26,900	18,100	395	104,000

W Withheld to avoid disclosing company proprietary data; included with "Metal products."

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes ceramic products, glass, other pigments and chemicals, and paints.

TABLE 9  
U.S. EXPORTS OF LEAD, BY CLASS 1/

(Metric tons)

	1995		1996		
	Year total	Nov.	Oct.	Nov.	Jan. - Nov.
Lead content:					
Ore and concentrates	65,500	17,800	236	383	44,400
Materials excluding scrap	57,200	5,100	7,140	6,760	95,800
Ash and residues	8,040	1,690	3,320	3,130	18,800
TEL/TML preparations, based on lead compounds	3,210	106	59	106	2,950
Total	134,000	24,700	10,800	10,400	162,000
Gross weight: Scrap	105,000	8,080	6,270 2/	6,110 2/	77,300 2/ 3/

1/ Data are rounded to three significant digits; may not add to totals shown.

2/ Includes only non-battery scrap data.

3/ Includes data for January-November only; December data not available at time of publication.

Source: Bureau of the Census.

TABLE 10  
U.S. IMPORTS OF LEAD BY TYPE OF MATERIALS AND BY COUNTRY OF ORIGIN 1/

(Metric tons, lead content)

Country of origin	General imports					Imports for consumption				
	1995		1996			1995		1996		
	Year total	Jan. - Nov.	Oct.	Nov.	Jan. - Nov.	Year total	Jan. - Nov.	Oct.	Nov.	Jan. - Nov.
<b>Ore, matte, etc.:</b>										
Australia	1,480	1,480	--	--	--	--	--	--	--	--
Bolivia	759	759	35	5	322	--	--	--	--	--
Canada	106,000	80,300	29,900	23,700	327,000	--	--	1,850	--	4,220
Mexico	2,380	2,380	658	1	2,340	2,380	2,380	658	1	1,520
Peru	12,800	12,300	728	54	12,600	88	88	--	--	--
Other	984	984	--	--	133	126	126	--	--	122
<b>Total</b>	<b>124,000</b>	<b>98,300</b>	<b>31,400</b>	<b>23,800</b>	<b>343,000</b>	<b>2,590</b>	<b>2,590</b>	<b>2,510</b>	<b>1</b>	<b>5,860</b>
<b>Base bullion:</b>										
Mexico	31	28	5	--	5	31	28	5	--	5
<b>Total</b>	<b>31</b>	<b>28</b>	<b>5</b>	<b>--</b>	<b>5</b>	<b>31</b>	<b>28</b>	<b>5</b>	<b>--</b>	<b>5</b>
<b>Pigs and bars:</b>										
Belgium	25	25	--	--	11	25	25	--	--	11
Bulgaria	1,910	1,910	--	--	--	1,910	1,910	--	--	--
Canada	182,000	168,000	24,500	19,300	175,000	182,000	168,000	24,500	19,700	175,000
Germany	3,140	3,080	79	32	258	3,140	3,080	79	32	258
Mexico	54,300	51,000	5,950	4,470	52,200	54,300	51,000	5,950	4,470	52,200
Netherlands	42	42	--	--	--	42	42	--	--	--
Peru	22,100	18,700	700	800	16,400	22,100	18,700	700	800	16,400
Sweden	5	5	--	--	--	5	5	--	--	--
United Arab Emirates	210	210	10	--	130	210	210	10	--	130
United Kingdom	128	128	19	--	19	128	128	19	--	19
Venezuela	364	364	--	--	--	364	364	--	--	--
Other	242	242	375	--	715	242	242	375	--	715
<b>Total</b>	<b>264,000</b>	<b>244,000</b>	<b>31,600</b>	<b>24,600</b>	<b>245,000</b>	<b>264,000</b>	<b>244,000</b>	<b>31,600</b>	<b>25,000</b>	<b>245,000</b>
Reclaimed scrap, including ash and residues	75	66	21	--	192	75	66	21	--	192
<b>Grand total</b>	<b>388,000</b>	<b>342,000</b>	<b>63,000</b>	<b>48,400</b>	<b>588,000</b>	<b>267,000</b>	<b>247,000</b>	<b>34,100</b>	<b>25,000</b>	<b>251,000</b>

1/ Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.